

REMARKS

Claims 15 to 25 are added, and therefore claims 8 to 25 are now pending. Applicants respectfully request reconsideration of the present application in view of this response.

Claims 8-14 were rejected under 35 U.S.C. §102(e) as anticipated by Machida et al., U.S. Patent 5,996,547. It is respectfully submitted that this reference does not identically describe (or even suggest) the following features of claims 8-14, and that the rejections should be withdrawn for the following reasons.

Claims 8 and 14 include the feature that a first variable which characterizes an injection quantity, and a second variable, which characterizes an angular position at which the injection quantity is metered, are used in determining a third variable which characterizes a torque supplied by the engine.

The Machida reference relates to a control apparatus for a combustion engine in which a target engine torque is calculated and compared to an actual engine torque. A deviation quantity is calculated from the difference between the values, and the lean combustion is inhibited when the deviation quantity is equal to or larger than a predetermined value.

In support of the rejections the Office Action asserts that a first variable which characterizes an injection quantity is purportedly disclosed in Fig. 2, numeral 6 and in col. 6, lines 17 to 20. However, Fig. 2 is merely a "schematic view of an internal combustion engine," and reference numeral 6 of this figure is merely an electromagnetic injection valve. There are no variables disclosed, or even suggested, by Fig. 2. As for the text, at column 6, lines 17 to 20, Machida merely states that, "a [piezoelectric] combustion pressure sensor has been provided....at the threading mount portion of either of electromagnetic injection valve 6 or ignition plug 7." Furthermore, as understood, the Machida reference states that the target engine torque is calculated based on an engine rotation speed and an open degree of accelerator, and the actual engine torque is calculated based on a rotational angular acceleration during a combustion or compression stroke. Machida, col. 2, lines 6-14. Therefore, Machida does not identically disclose a first variable which characterizes an ***injection quantity***, or using such a variable to determine a variable which characterizes a torque supplied by an engine, as recited in the context of claims 8 and 14.

Furthermore, the Office Action asserts that Fig. 2 purportedly discloses a second variable which characterizes an angular position at which the injection quantity is metered. However, as explained above, Fig. 2 is a schematic view of an internal combustion engine and does not identically disclose (or even suggest) any variables at all. Furthermore, an engine rotation speed is used in the calculation of the target engine torque and a rotational angular acceleration is used in the calculation of the actual engine torque. However, Machida does not identically disclose (or even suggest) a variable characterizing an angular *position* at which the injection quantity is metered, or that such a variable is used to determine a variable which characterizes a torque supplied by the engine, as recited in the context of claims 8 and 14.

To reject a claim under 35 U.S.C. § 102, the Office must demonstrate that each and every claim limitation is identically disclosed in a single prior art reference. (See Verdegaal Bros. V. Union Oil Co. of California, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." M.P.E.P. § 2131. It is respectfully submitted that Machida does not anticipate claims 8 and 14 for the above reasons.

Claims 9-13 (as well as new claim 15) depend from claim 8, and are therefore allowable for at least the same reasons as claim 8. As to claim 9, it now recites only a solenoid valve (nd new claim 23 recites only a piezoelectric actuator).

Furthermore, regarding claim 9, col. 6, lines 17 to 20, merely state that a piezoelectric combustion sensor is provided. Therefore, Machida does not identically disclose (or even suggest) that the first variable corresponds to an actuation duration of an output stage of one of a solenoid valve and a piezoactuator, as recited in claim 9.

Regarding claim 10, as stated above, Fig. 2 is a schematic view of an internal combustion engine and does not identically disclose (or even suggest) any variables at all. Therefore Machida does not identically disclose (or even suggest) that the angular position is that of a crankshaft and that the second variable corresponds to the angular position of the crankshaft at which the injection occurs, as recited in claim 10.

Regarding claim 12, Machida states that a deviation quantity is calculated from the difference between a target engine torque and an actual engine torque. Machida, col. 1, lines 64-67 and col. 2, line 8. The fifth variable of claim 12 characterizes a torque desired by the

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driver, as recited in claim 8, from which claim 12 depends. Therefore, Machida does not identically disclose (or even suggest,) detecting a fault when the third variable and the fifth variable differ by more than a threshold value, as recited in claim 12.

New claims 15 to 25 do not add any new matter and are supported in the specification. New claims 15 to 25 depend from claim 8, and are therefore allowable for the same reasons as claim 8. Accordingly, it is respectfully submitted that claims 15 to 25 are allowable.

Accordingly, claims 8 to 25 are allowable.

CONCLUSION

In view of the foregoing, it is believed that the rejections of claims 8 to 14 have been obviated, and that claims 8 to 25 are allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

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Respectfully submitted,
KENYON & KENYON
By: 
Richard L. Mayer
(Reg. No. 22,490)

One Broadway
New York, New York 10004
(212) 425-7200

33,825
Aaron C.
Deitch)

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